

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Previously Presented) A transmission diversity device, comprising:  
  
a plurality of antenna elements;  
  
a plurality of processing devices respectively connected to one of the antenna elements;  
  
and  
  
phase comparison and adjustment means for comparing phases of signals received at the antenna elements and for adjusting the phases of signals transmitted by the antenna elements according to the result of the comparison,  
  
wherein the transmission diversity device is designed for a multicarrier transmission and individually compares the phases of at least one frequency subcarrier of the multicarrier transmission of each antenna element with the phase of at least one frequency subcarrier of at least one other antenna element and adjusts it subsequently for a transmission.
  
2. (Previously Presented) The transmission diversity device according to claim 1,  
  
wherein the device is designed for an OFDM transmission.
  
3. (Previously Presented) The transmission diversity device according to claim 1, further comprising:  
  
a subcarrier phase comparison dependent amplitude adjustment function.

4. (Previously Presented) The transmission diversity device according to claim 1, further comprising

a means for averaging the phase differences of a plurality of subcarriers respectively received at one antenna element.

5. (Previously Presented) The transmission diversity device according to claim 1, further comprising

a means for frequency adjusting phase differences of the subcarriers received respectively at one antenna element.

6. (Previously Presented) The transmission diversity device according to claim 1, further comprising

a means for comparing only predetermined subcarriers of different antenna elements.

7. (Previously Presented) A method for a wireless transmission diversity transmission by means of a plurality of antenna elements and a plurality of processing devices respectively connected to one of the antenna elements, comprising the steps of

comparing phases of a signal received at the antenna elements and adjusting phases of signals to be transmitted by the antenna elements depending on the result of the comparison, characterized by the steps of :

comparing individually the phase of at least one frequency subcarrier of a multicarrier transmission for each antenna element with the phase of at least one frequency subcarrier of at least one other antenna element; and

adjusting it subsequently for a transmission.

8. (Previously Presented) The method according to claim 7, wherein the step of comparing is repeated at least twice to calculate an average value used for the step of adjusting.

9. (Previously Presented) The method according to claim 7, wherein the multicarrier transmission is a OFDM transmission.

10. (Previously Presented) The method according to claim 7, further comprising the step of amplitude adjustment depending on the subcarrier phase comparison.

11. (Previously Presented) The method according to claim 7, further comprising the step of averaging the phase differences of a plurality of subcarriers respectively received at one antenna element.

12. (Previously Presented) The method according to claim 7, further comprising the step of frequency adjusting phase differences of the subcarriers received respectively at one antenna element.

13. (Previously Presented) The method according to claim 7, further comprising the step of comparing only predetermined subcarriers of different antenna elements.

14. (Previously Presented) The method according to claim 7, wherein the step of comparing (10) comprises

the step of correlating time domain data.

15. (Previously Presented) The method according to claim 7, wherein in case it is detected that at any of the antenna elements no signal or a signal with an amplitude below a predetermined threshold is received, said antenna element is not used for a transmission.

16. (Previously Presented) The method according to claim 7, wherein the method is only applied in a base station of a wireless transmission system.

17. (Currently Amended) A computer ~~program, stored in a tangible storage readable~~ medium and instructions in the medium ~~for performing diversity transmission, the program comprising executable instructions that cause a~~ to be executable by a computer to, said instructions comprising:

comparing ~~compare~~ phases of a signal received at the antenna elements and adjust phases of signals to be transmitted by the antenna elements depending on the result of the comparison, characterized by the steps of :

comparing ~~compare~~ individually the phase of at least one frequency subcarrier of a multicarrier transmission for each antenna element with the phase of at least one frequency subcarrier of at least one other antenna element; and

adjusting ~~adjust~~ it subsequently for a transmission.

18. (New) A communication device for receiving OFDM signals which are transmitted from a transmitter device in a multicarrier transmission system, the communication device comprising:

a plurality of antenna elements for receiving the OFDM signals which are transmitted by using a plurality of subcarriers of the multicarrier transmission system; and

a processing device, connected to said plurality of antenna elements, for processing said received OFDM signals,

wherein said processing device calculates a subcarrier phase of each of said plurality of subcarriers respectively and adjusts said subcarrier phases so as to reduce a multipath fading in the multicarrier transmission system.

19. (New) A communication device for receiving OFDM signals which are transmitted from a transmitter device in a multicarrier transmission system, the communication device comprising:

a plurality of antenna elements for receiving the OFDM signals which are transmitted by using a plurality of subcarriers of the multicarrier transmission system; and

a processing device, connected to said plurality of antenna elements, for processing said received OFDM signals,

wherein said processing device adjusts subcarrier phases of said plurality of subcarriers and generates a subcarrier information for including said subcarrier phases of said plurality of subcarriers so that the subcarrier information is transmitted to the transmitter device to adjust said subcarrier phases in the transmitter device side.

20. (New) A communication device for receiving OFDM signals which are transmitted from a transmitter device in a multicarrier transmission system, the communication device comprising:

a plurality of antenna elements for receiving the OFDM signals which are transmitted by using a plurality of subcarriers of the multicarrier transmission system; and

a processing device, connected to said plurality of antenna elements, for processing said received OFDM signals,

wherein said processing device calculates subcarrier phases and amplitudes of said plurality of subcarriers and generates a subcarrier information for including said subcarrier phases and amplitudes of said plurality of subcarriers so that the subcarrier information will be transmitted to the transmitter device to adjust said subcarrier phases and amplitudes in the transmitter device side.

21. (New) A communication device for receiving OFDM signals which are transmitted from a transmitter device in a multicarrier transmission system, the communication device comprising:

a plurality of antenna elements for receiving the OFDM signals which are transmitted by using a plurality of subcarriers of the multicarrier transmission system; and

a processing device, connected to said plurality of antenna elements, for processing said received OFDM signals,

wherein said processing device adjusts subcarrier phases of said plurality of subcarriers so as to reduce a multipath fading in the multicarrier transmission system.

22. (New) A communication apparatus for receiving transmission signals transmitted from a transmitter device in a wireless transmission system, the apparatus comprising:

antenna means comprising a plurality of receiver antenna elements being  $N$  to receive said transmission signals from a plurality of transmitter antenna elements being  $Q$  of said transmitter device,

wherein said transmission signals are transmitted by using a plurality of subcarriers being defined by a multicarrier OFDM transmission scheme;

Fourier transformation units, connected to said plurality of receiver antenna elements respectively, for performing Fourier transformation processes to said transmission signals to generate transformed signals; and

means for calculating phases of said plurality of subcarriers from said transformed signals by using  $N*Q$  matrix in order to adjust the phases of said plurality of subcarriers based on the calculation result.

23. (New) A communication device for transmitting OFDM signals to a receiver device in a multicarrier transmission system, the communication device comprising:

a plurality of antenna elements for transmitting the OFDM signals which are to be transmitted by using a plurality of subcarriers of the multicarrier transmission system; and

a processing device, connected to said plurality of antenna elements, for processing said OFDM signals to be transmitted,

wherein said processing device receives information concerning subcarrier phases of each of said plurality of subcarriers through said plurality of antenna elements, and adjusts subcarrier

phases of said OFDM signals to be transmitted in accordance with said received subcarrier  
phases so as to reduce a multipath fading in the mulitcarrier transmission system.